



*Utah Department of  
Transportation  
Research Division  
December 2005*



## Research Pays Off

### Web Links:

**FHWA:** <http://www.fhwa.dot.gov>

**TRB:** <http://trb.org/>

**Utah LTAP:**

<http://www.utaht2.usu.edu/>

**AASHTO:**

<http://www.aashto.org>

**UDOT Research**

[www.udot.utah.gov](http://www.udot.utah.gov)

### Acronyms:

**TRB:** Transportation  
Research Board

**RAC:** Research Advisory  
Council

**SAFETEA-LU:** Safe,  
Accountable, Flexible,  
Efficient Transportation  
Equity Act

**RABA:** Revenue Aligned  
Budget Authority

**ARTBA:** American Road &  
Transportation Builders  
Association

**MATC:** Mid America  
Transportation Center

**LTAP:** Local Technical  
Assistance Program

**HTF:** Highway Trust Funds

**TRIS:** Transportation  
Research Information  
Services

**RIP:** Research In Progress

## Building on Past Successes

by Rukhsana Lindsey, P.E.

Director of Research

"Now that I have had the chance to settle into my job, I would like to share with you some recent developments and my vision of what you can expect from Research in the months ahead."



### *UDOT Research Wins AASHTO Presidential Award*

It has been said that necessity is the mother of invention. In the Research Division, we not only believe this, we live by it. That is why we work hard to communicate with you in various ways, so we can learn about your needs and strive to meet them through innovation. The Utah Research Advisory Council (UTRAC) Process is one of the key ways we facilitate the exchange of information to help us identify the research critical to UDOT and the traveling public. After many years of sponsoring successful UTRAC workshops, this year we redoubled our efforts to make it even better – and it paid off. This year, the Research Division received the AASHTO Presidential Award for innovative partnership process we achieve through UTRAC. This award is not only a testament of our commitment to serving you and the rest of the department; it represents the culmination of many years of hard work by the Research staff.



### **AASHTO Presidential Award Recipients**

(Pictured left to right: Doug Anderson, Abdul Wakil, Andrew Stromness, Esther Olsen, Blaine Leonard, Rukhsana Lindsey, Debbie Heim, Michelle Page, and Daniel Hsiao. Not pictured: Paul Mooney (FHWA), Ken Berg and Richard Sharp.)

As you may be aware, many of the research projects we administer in the Research Division span over several years. Good research takes time. But there are a great many other programs and services we offer that provide quicker payoff. It is our earnest intention that you take advantage of the variety of services we offer in addition to serving on research Technical Advisory Committees (TACs). **Your job is to achieve results. And whenever your results require innovation, evaluation, or technology transfer we can help.** Consider the following results we are helping our customers achieve.

### *Research Project Deliverables*

**The Virgin River Basin regression equation and The Weber River Basin flood frequency analysis** have been completed. The new equation has significantly reduced the flood projection. It will save the flood design costs for many years to come. The analysis greatly improves the accuracy of our flood projections.



**The deer ramp standard drawings and specification** were prepared in coordination with the Department of Wildlife Resources (DWR), United States Geological

Service (USGS), John Bissonette, the Environmental section, and the regions. ([Std Dwgs: FG 4A & 4B](#); [Std Spec: Section 02827, Deer Crossing](#))

**The Crash Data Almanac** is being implemented statewide. Training is currently underway for all regions. Data mining activities are occurring on a daily basis by many users.



Contact Doug Anderson for additional information, [DIANDERSON@utah.gov](mailto:DIANDERSON@utah.gov)

The GIS-based Crash Data Almanac is a highly interactive web-based crash analysis tool that allows technical specialists to evaluate crash data from vastly more perspectives and faster than ever before.

### *Experimental Features*

#### **2005 Interim Report Highlights**



in Region One and Three. Region One has written a special provision.

#### **Techrete Concrete Pavement Patching:**

Techrete, a hot applied, fast setting polymer concrete pavement patching material shows promise. It is being evaluated on NB I-215 at the EB I-80 off-ramp as well as



#### **I-215 Pavement Marking Test Deck:**

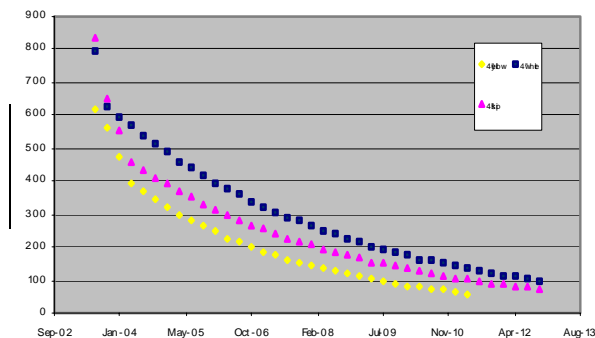
Five different materials and ten different products were installed in the summer of 2004 on I-215 between the I-80 and Redwood Road interchanges and are being evaluated for retro-reflectivity and durability.

#### **Gilsonite in Asphalt:**

Powdered gilsonite with melting reducing polymers is being evaluated as an alternative to lime. An overlay was placed on SB US-40 near Naples, UT and is being evaluated with field and laboratory tests.



**Polyurea Traffic Marking:** UDOT's first test section of Polyurea traffic markings is performing well on Bangerter Highway. The retroreflectivity life is predicted to be 7 to 9 years.





## 2005 Final Report Highlights

### Cable Median Barrier:

CASS & Brifen systems were evaluated on I-15 in two locations in Utah Co. Both systems have proven effective in significantly reducing serious injuries and fatalities. In addition, maintenance costs were relatively low.



### COMAX Pavement Marking

**Removal:** The COMAX system, consisting of diamond cutting heads and vacuum dust removal is used to prepare the surface for grooved-in or surface-applied pavement markings.

## 2005 Special Study Highlights

### Bridge Corrosion

**Monitoring System:** In 2003, on the SR-79 EB and WB Structures over 31<sup>st</sup> St. in Ogden, UT, probes were installed at key locations in the deck.



## Quality Improvement Teams (QITs)

Research personnel not only work on continuous improvement initiatives for internal research processes, we also provide assistance and neutral facilitation for specific technical issues and department wide processes.

**New Products QIT** identified additional communication measures to all divisions within the department through a new review website as well as a notification email with web link. Policy and Procedure were updated to reflect new job titles.

**Wildlife QIT** facilitated efforts in addressing wildlife and domestic "hot spots" throughout the state and identifying effective counter measures in a [Wildlife Toolkit](#).

**A Pooled Fund Process Review** has been initiated in coordination with FHWA to enhance the organization of our joint processes and develop strategies to maximize the effectiveness of pooled fund projects.

## How the Research Division Can Help You

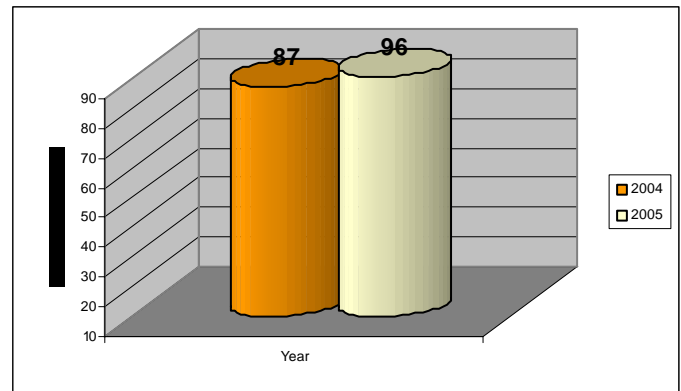
As you can tell from this publication, there are many ways that research personnel are assisting UDOT operational units. Sometimes we do things simply to improve communication and informational flow, such as:

- Visiting one-on-one with Regions and Divisions.
- Presenting discipline-specific status reports on all research to Divisions as requested.

Facilitating internal technology transfer library sessions to help units within the department communicate their innovations with the rest of the Department.

**Experimental Features** (Test Sections for New Products) We can help you evaluate, document, and disseminate progress and results of experimental feature projects. Get us involved early so we can ensure all requirements are met. Contact Michelle Page, Richard Sharp or Ken Berg.

**TRIS Literature Searches** – Find out what research has been completed nationally and internationally on the issue you are addressing so you can implement the best available solution. Contact Abdul Wakil.



TRIS Searches Performed in FY 2004 and 2005

**Pooled Fund Studies** – Pool resources from your interested counterparts in other states and organizations to complete important research. Contact: Michelle Page or your primary liaison in the Research Division

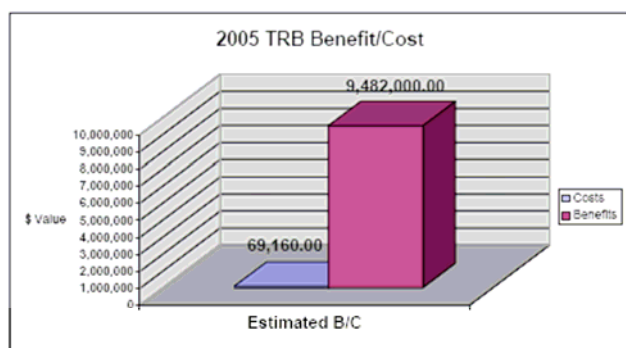
**Lester Wire Library Technology Transfer Sessions** – These technology transfer sessions have proven to be an effective internal technology transfer mechanism. Learn about upcoming sessions or volunteer to promote your innovation to the rest of us. Contact Abdul Wakil for more information.

Date	Event	Presenter(s)
8/30/2004	Adaptive Signal Control	Mark Parry
9/30/2004	Utah GPS Reference Station Network	Sean Fernandez
11/18/2004	Access Management	Tim Boschert
12/16/2004	Experimental Features	Michelle Page & Barry Sharp
1/20/2005	Safety Index	Glen Ames
1/31/2005	UDOT Bluebook	Chris Glazier
3/24/2005	Changes in ePM	Fred Doehring & Daniel Avila
9/21/2005	Wildlife QIT Trainings	Michelle Page
10/12/2005	Pavement Marking	Vincent Liu
12/06/2005	Concept Report Process	Richard Miller & Tony Lau
01/18/2006	Utah Aging Culverts	Michael Fazio & Denis Stuhff
02/02/2006	Utah Aging Culverts	Abdul Wakil & Paul Mooney

**TRB - National Coordination** - Each Year a visitor from TRB comes to Utah to discuss coordination of national priorities. The TRB representative, Elaine King, met with UDOT Senior Leaders, the Research Division, UDOT Rail Staff, UDOT, Federal Motor Carriers, and UTA Staff. Elaine also met with our Rotational Engineers to promote careers in Transportation.

### Performance Measures

Those attending the 2005 TRB Conference in Washington D.C. were asked to bring at least two new technologies back to Utah. The following graph illustrates the cost of attending and estimated Benefit of successful and implementable technologies.



**WASHTO-X Sessions** – This videoconference peer exchange program allows you to collaborate with your counterparts in other states.

Visit [www.washto-x.org](http://www.washto-x.org) for schedule information and coordinate with Abdul Wakil.

Event	Date
Innovative Financing	01/25/2005
Long Term Pavement Performance Monitoring & Validation of New Pavement Design	02/08/2005
New Product Evaluation	03/08/2005
Rapid Bridge Construction & Rehabilitation Techniques & Methods	05/10/2005
Quiet Pavements: Measures for Reducing Pavement Noise	05/11/2005
Pedestrians Crossing	06/14/2005
Peer Exchange	07/12/2005
Roundabouts	08/09/2005
Transportation Workforce Development	09/13/2005
Implementing Research Effectively	10/11/2005
The New Highways for Life Program	11/08/2005
Construction issues	12/13/2005

### UTRAC Project Opportunities

UTRAC is where research is born. Develop problem statements that can be addressed through research. Contact Blaine Leonard.

### UTRAC Workshop Program Improvements -

The Research Division has implemented many improvements to the UTRAC process that helped us achieve a record turnout of 153 and obtain the AASHTO Presidential Award. The results of our improvement efforts will lead to lasting changes in the UTRAC program including:

- Advance submission of Problem Statements
- Advance evaluation of Problem Statements, including TRIS searches to see what information already exists
- Expansion of the Workshop to include eight topic groups
- Modified prioritization system
- Honoring the priority by funding the top ranked problem statements
- Focus on Implementation

**Think about how the Research Division might be of service to you and contact us with your ideas**